

REMARKS

This Amendment is filed in response to the Office Action mailed Sept. 8, 2006. All objections and rejections are respectfully traversed.

Claims 1-33 are now pending in the case.

Claims 1, 7, 9-13, 16, 19, 20, and 21 have been amended.

Claims 23-33 have been added. Such claims are believed to be allowable in light of the Examiner's comments.

Request for Interview if Outstanding Issues

If there are any outstanding issues that would delay a notice of allowance, the Applicant respectfully requests a telephonic interview. The Applicant's attorney may be reached at 617-951-2500 at a time convenient to the Examiner. The Applicant hopes that prosecution may be expedited by a telephonic interview.

Claim Rejections - 35 U.S.C. §103

At paragraphs 2-3 of the Office Action, claims 1, 3 and 5-20 were rejected under 35 U.S.C. §103(a) as unpatentable over Lyon et al., U.S. Patent No. 6,333,917 (hereinafter Lyon), in view of Bonomi et al., U.S. Patent No 6,069,872 (hereinafter Bonomi).

The Applicant's claim 1, representative in part of the other rejected claims, sets forth:

1. A switch for a computer network, the switch to receive ATM cells from the computer network, comprising:

a switching fabric configured to receive a cell at an input port, said switching fabric selecting a route there-through for said cell to an output port;

at least one queue within said switching fabric, said queue having an associated threshold, said switching fabric configured to determine the number of cells present in said queue, said switching fabric further configured to determine if the next arriving cell for said at least one queue fills

said queue above said threshold, and in the event that said at least one queue is filled above said threshold, then write a flag bit within said cell to a "set" state; and

a traffic manager configured to compute a ratio of cells having said flag bit set to a total number of cells received at an output port, and in response to a value of said ratio, either discard said cell or forward said cell onto an output link of said computer network, said traffic manager configured to select a cell to be discarded on a random basis and absent access to the number of cells present in the at least one queue.

Lyon discloses an enhanced random early detection (RED+) scheme for use within a switching fabric or on line cards of a network device. *See abstract.* As part of the RED+ scheme, Lyon discloses a Marking Rate Generator (see Fig. 5, item 74 and all of Fig. 6) that determines a rate at which to tag/drop packets. *See col. 9, lines 6-11 and 19-21.* The Marking Rate Generator takes as an input a "queue fill" measurement, and integrates the "queue fill" measurement. *See Fig. 6, box 80 and col. 9, lines 21-25.* The result is then normalized and scaled. *See Fig 6, box 82 and col. 9, lines 26-30.* After the normalization, a desired queue fill is subtracted from the now integrated, normalized queue fill measurement. *See Fig. 6, item 84 and col. 9, lines 31-36.* This result is then used by a controller, a lookup table, and other circuitry to determine a tag/drop rate for packets. *See col.9, lines 34-38 and Fig 6.*

As is apparent, access to the "queue fill" measurement is needed in Lyon's disclosed technique to determine the tag/drop rate. Without access to a measurement of the queue fill, the technique would likely not function.

Bonomi discloses a congestion control technique with separate fair bandwidth allocation and congestion control. *See col. 2, line 66 to col. 3, line 2.* To achieve fair bandwidth allocation, a switch adjusts a rate for a particular virtual connection (VC) in response to queue length information and other factors. *See col. 3, lines 2-7.* To control congestion, queue length again is utilized among other factors. *See col. 3, lines 12-16*

As in Lyons, it is apparent that access to "queue length" information is needed for Bonomi's techniques.

The Applicant recognizes that, in some system, access to queue information may be limited or not available outside of the queue. Specifically, at page 3 of the background portion of the specification the Applicant comments (emphasis added):

However, when a switch fabric is implemented in a set of commercial computer chips, the queues within the switch fabric are *not available* to the switch designer. A switch designer then can not implement the RED algorithm.

The Applicant addresses these shortcomings, in part, by “a traffic manager configured to compute a ratio of cells having said flag bit set to a total number of cells received at an output port, and in response to a value of said ratio, either discard said cell or forward said cell onto an output link of said computer network, said traffic manager configured to select a cell to be discarded on a random basis and absent access to the number of cells present in the at least one queue.”

Rather than rely upon access to queue information, such as “queue fill” measurements, as suggested in both Lyon and Bonomi, the Applicant computes *a ratio of cells having said flag bit set to a total number of cells received at an output port*. Such information is generally available absent access to the number of cells present in the at least one queue. The Applicant further teaches, *in response to a value of said ratio* the switch discards a cell or forwards the cell onto an output link. Both references teach away from this novel technique.

Accordingly, the Applicant respectfully urges that the combination of Lyon and Bonomi is legally insufficient to make obvious the present claims under 35 U.S.C. §103.

At paragraphs 4 of the Office Action, claims 2 and 4 were rejected under 35 U.S.C. §103(a) as unpatentable over Lyon and Bonomi in further view of Admitted Prior Art.

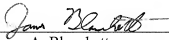
Claims 2 and 4 are dependent claims that depend from independent claim 1. Since claims 1 is believed to be allowable for the reasons discussed above, claims 2 and 4 are also believed to be allowable.

Should the Examiner believe a telephonic interview would be helpful in the disposition of this Application, the Examiner is encouraged to call the undersigned attorney at (617) 951-2500.

In summary, all the independent claims are believed to be in condition for allowance and therefore all dependent claims that depend there from are believed to be in condition for allowance. The Applicant respectfully solicits favorable action.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,



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